PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants	DePhillipo and Ricciardi
Serial No.	09/924,011
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Art Unit	1633
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Examiner	Kaushal
Title	Use of Genetic Information for Detecting a Bone Density Condition
Atty. Docket No.:	GNLK 02

Cincinnati OH 45202 April 27, 2007

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DECLARATION OF ROBERT P. RICCIARDI, Ph.D.
PURSUANT TO 37 CFR §1.132

I, ROBERT P. RICCIARDI, declare as follows:

1. I am an inventor of the referenced application. I was awarded a Ph.D. in Cellular and Molecular Biology from the University of Illinois in 1977. I have over 26 years of experience in this field, which is the subject matter of my invention.

2. I have read the outstanding Office Action, and understand the Examiner's position.

3. I respectfully disagree that claims 1, 14-17, 20-27, 30-32 and 63-64 are not described and are not enabled for at least the following reasons.

4. It is my opinion that one skilled in the art would know how to obtain, without undue experimentation, a sequence for a human gene encoding a Vitamin D receptor (VDR) and/or for a human gene encoding interleukin-6 (IL-6). For example, one would interrogate the human genome sequence by searching available database sites; a popular site that would provide this information is the National Center for Biotechnology Information (NCBI) database, available at http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide.

5. Alternatively, one skilled in the art may access EntrezGene, available at http://www.ncbi.nlm.nih.gov. On the "Search" dropdown menu on the upper left, select "gene" and type in "human Vitamin D receptor" in the "for" box and perform the search. A variety of genes will appear, such as the receptor and receptor-associated proteins, etc. Look through the list and find the desired gene, in this example, "#11 VDR (human)". Access it (click on it) and all the related information, including sequence, for the gene appears.

6. Another site that would provide information on polymorphisms (single nucleotide polymorphisms (SNP)) is http://www.ncbi.nlm.nih.gov/SNP.

7. It is my opinion that one skilled in the art would know how to determine if a polymorphism in a human gene encoding a Vitamin D receptor and/or a human gene encoding interleukin-6 (IL-6) has been identified as associated with a pathology. Polymorphisms showing associations with a pathology are reported in the literature, which can be queried by searching publication databases such as PubMed, available at file:///Users/robertiricciardi/Desktop/PubMed.html.

8. As one example, a IL-6 polymorphism, manifested as a change from a guanine (G) to a cytosine (C) at position -174 of the IL-6 gene promoter is described in Ferrari et al., Arthritis Rheum. (2001) 44, 196. As another example, a Vitamin D receptor gene polymorphism, manifested as a change from a cytosine (C) to a thymine (T) which creates an initiation codon (ATG) three codons proximal to the start site, and which produces a variant polypeptide with three additional amino acids, is described in Ames et al., J. Bone Miner. Res. (1999), 14, 740; Gennari et al., J. Bone Miner. Res. (1999), 14, 1379; and Choi et al., Hum. Genet. (2000), 45, 280.

9. Alternatively, one skilled in the art may access the polymorphism by continuing from the search I describe in ¶5. Viewing the VDR gene page, scroll down to "phenotypes", providing gene-related pathologies such as osteoporosis. Click on the desired pathology, in one example "osteoporosis", to view summaries and references for the association of the gene with the pathology. A polymorphism in VDR is associated with osteoporosis, and linkage studies have implicated IL-6. Click on the number hyperlink after VDR and IL-6 to access a page further describing the involved molecular genetics. Polymorphisms can also be found under the "SNP" selection on the right side of the VDR gene web page.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the subject application or any patent issued thereon.

April 26, 2007
Date

Robert P. Ricciardi
Robert P. Ricciardi, Ph.D.